Mycobacterium heidelbergense Species Nov. infection mimicking a lung tumor

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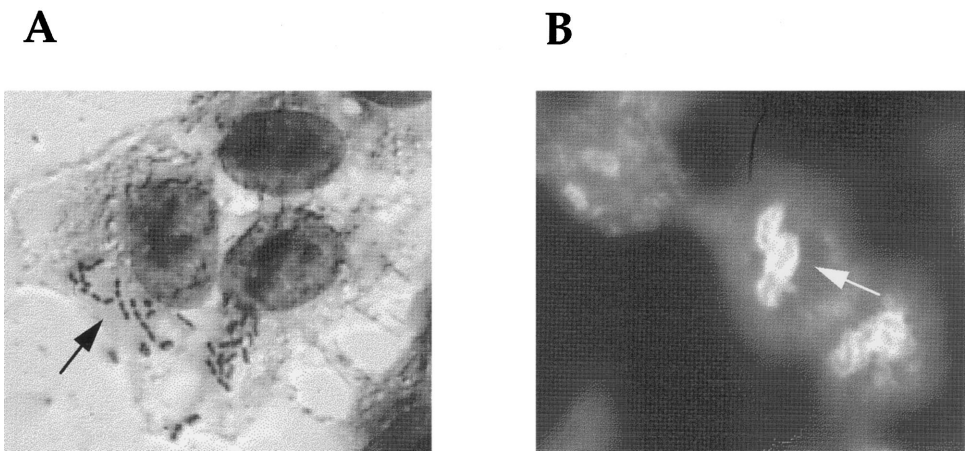

Figure 1. *A,* Giemsa staining showing *Klebsiella pneumoniae* (*arrow*) adhering to HeLa cells. *B,* Fluorescein isothiocyanate-phalloidin staining for filamentous actin of HeLa cells infected with *K. pneumoniae.* Actin aggregation is present in a distribution consistent with adherence of the bacteria (bacteria at *arrow*). (Original magnification, ×1000.)

virulence of this *K. pneumoniae* strain might be the presence of new virulence genes.

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Mycobacterium heidelbergense Species Nov. Infection Mimicking a Lung Tumor

Mycobacterium heidelbergense species nov. has recently been described as a new agent of cervical lymphadenitis in two children [1]. We describe a patient with pulmonary disease caused by this novel mycobacterium that mimicked, at first sight, a lung tumor.

In a previously healthy, asymptomatic, life-long nonsmoking 82-year-old woman, a tumor-like lesion was detected, on a chest radiograph, in the lateral segment of the middle lung lobe. This lesion had not been present on a chest radiograph obtained 16 months earlier. A CT scan of the chest showed a 2.5 × 2.5 × 2.0-cm lesion abutting the pleura that was not sharply demarcated and did not contain calcium (figure 1). There was neither bronchiectasis nor parenchymal destruction present. A fiberoptic bronchoscopic evaluation was normal, and cytologic evaluation of a bronchial brushing specimen did not reveal malignant cells. Nevertheless, a bronchial carcinoma was suspected and, because the patient was in excellent health and her pulmonary function testing was normal, she underwent a video-assisted thoracoscopic resection of the middle lobe. Histological evaluation of a grayish nodule in the lobe revealed epithelioid granulomatous inflammatory changes as well as caseous necrosis, both highly suggestive of tuberculosis. The patient's postoperative course was uneventful and she was discharged on the fifth postoperative day.

After 5 weeks, cultures of a biopsy specimen obtained during the thoracoscopic procedure yielded a slow-growing nonphotochromogenic mycobacterium on solid (Middlebrook 7H10 agar) but not in a radiometric medium (BACTEC 12B; Becton Dickinson Diagnostic Instrument Systems, Sparks, MD). Subcultures did not grow at 45°C or in media containing 5% NaCl. With the exception of 68°C catalase and urease, results of all routine biochemical testing were negative (nitrate and tellurite reduction, niacin production, Tween hydrolysis, phosphatase, aryl sulfatase, and semiquantitative catalase). The pattern of cellular fatty acids as determined by use of gas-liquid chromatography resembled that of *Mycobacterium malmoense.* The major components were C16:0 (24.5%), C18:1ω9c

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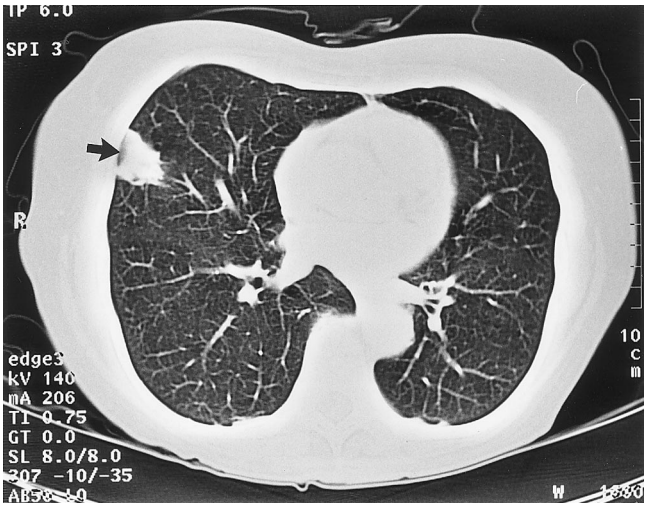

Figure 1. CT scan at the level of the middle lung lobe showing a 2.5 × 2.5 × 2.0-cm solid lesion located subpleurally, without calcification or necrosis (*arrow*) and with normal lung parenchyma.

(33.5%), and tuberculostearic acid (14.7%). The guanine plus cytosine content of the DNA was 66.7 mol%. Mycolic acids consisted of α- and α'-mycolates in addition to ketomycolate. Our isolate exhibited a novel PCR-RFLP (restriction fragment length polymorphism) pattern of the amplified 65-kD heat shock protein gene fragment (65-kD-HSP-PRA [PCR/restriction enzyme analysis] [2]). After digestion of *Bst*EII and *Hae*III, 254/220 bp and 140/115/80 bp bands were obtained, respectively. Direct 16S rRNA gene sequence analysis revealed a unique sequence for each of the hypervariable regions A and B [3], both of which were 100% homologous to the sequence of *M. heidelbergense.*

On the basis of its combined morphological and biochemical properties, it was determined that our pulmonary isolate exhibited the same characteristics as the proposed new microorganism *M. heidelbergense* species nov. In addition, on the basis of its strictly aerobic growth, the organism can be easily distinguished from the closely related *M. malmoense,* which is microaerophilic. Although the original strain 2554/91 of Haas et al. [1] was fully susceptible to isoniazid, rifampin, ethambutol, and streptomycin (which is unusual for a nontuberculous mycobacterium), our strain was resistant to these antituberculous agents as well as to pyrazinamide, and, with the exception of ciprofloxacin, our strain was also resistant to all the second line agents: amikacin, rifabutin, clarithromycin, clofazimine, ofloxacin, and sparfloxacin. Given the unique patterns generated by 65-kD-HSP-PRA, in particular, the 100% homology of the hypervariable signature regions within the 16S rRNA gene, our isolate was unambiguously identified as *M. heidelbergense.*

Lung infections due to nontuberculous mycobacteria among HIV-negative patients are most commonly caused by *Mycobacterium avium* complex and *Mycobacterium kansasii.* Examples of other pathogens that sometimes cause pulmonary diseases include *Mycobacterium xenopi, M. malmoense,* and *Mycobacterium simiae* [4]. These organisms largely affect patients with preexisting lung conditions such as old tuberculosis or bronchiectases. Occasionally, infections due to these organisms present as a mass lesion that is indistinguishable from lung cancer on chest radiography [5].

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Immune Thrombocytopenia Caused by Piperacillin/Tazobactam

Thrombocytopenia is a rare side effect associated with β-lactam antibiotic therapy [1], and isolated thrombocytopenia induced by ureidopenicillins seems to be particularly uncommon. We describe a patient who was treated with piperacillin/tazobactam (PT) and who developed antibodies to platelets, resulting in severe thrombocytopenia.

A 69-year-old woman with diabetes presented for evaluation of fever and pain in the right hypochondriac and inferior chest regions of 2 days' duration. Laboratory evaluation revealed a WBC count of 22,000/mm^3 with a left shift, and values for RBCs and platelets were within normal limits. Results of serum chemistry studies, blood gas evaluation, and urinalysis were normal, and findings on a chest radiograph were normal. Abdominal ultrasonography was suspicious for cholecystitis. Therapy was initiated with 4 g of piperacillin plus 0.5 g of tazobactam (Tazocel; Lederle, Madrid, Spain) every 8 hours. Findings on a repeated ultrasonographic scan and a biliary isotopic scan

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